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A Zeitgeist of Societal Discontent: Development of the International Z-scale

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Abstract

In recent years, various countries around the world seem to be in the grip of a collective sense of doom and gloom about the state of society. Anecdotal evidence suggests that societal discontent influences election and referendum outcomes. To gain insight in this apparent global trend, the present research develops an international measure of societal discontent to enable cross-national comparisons. Prior research suggests that societal discontent is an aspect of the Zeitgeist, which can be operationalized as a general factor Z (Van der Bles, Postmes, & Meijer, 2015). In the present research, a survey was conducted among university students in 28 countries (N = 6112; e.g., Brazil, Canada, Indonesia, Spain). We developed an international Z-scale and established its measurement invariance. Therefore, we could compare societal discontent (Z) across the countries in our sample. The divergent and convergent validity of Z was assessed. Furthermore, we explored the relations between societal discontent (Z) and country-level indicators of (economic) welfare and inequality. Results showed that countries with objectively good living conditions had highly variant levels of discontent. Although further validation of the international Z-scale is recommended, we conclude that the international Z-scale is sufficiently valid. We recommend Z to the field as a new instrument with which social science can empirically dissect the global trend of societal discontent.

In recent years, a sense of doom and gloom has emerged in many countries around the world. People appear worried about immigration, the economy, the quality of health care or education systems, and the political elite not caring for the interests of "common people". In 2016, this collective discontent with the state of society appears to have played an important role in major political developments. In the United Kingdom (UK), the vote for Brexit (to leave the European Union) appears to have stemmed not just from concerns about the EU, but also from a deep discontent with the current state of the U.K. more generally (e.g., Swales, 2016). In Germany, the populist AfD party (Alternative für Deutschland) explained their success of in state elections as stemming from the fact that they dare to name the big problems Germany is facing (e.g., Eijsvoogel, 2016). In the United States (US), the presidential election campaigns of both Donald Trump and Bernie Sanders embraced the idea that American society is no longer great. In sum, we appear to be witnessing a cross-national phenomenon that people believe their society to be in decline.

But this analysis, of collective discontent with society riding high and causing political upheaval, is largely based on anecdotal evidence. A scientific analysis of collective societal discontent is difficult to make because research tends to rely on indicators that are, at best, indirectly related to discontent (e.g., political trust, hope, satisfaction, angst). To improve this, we developed a research program for a new measure of collective societal discontent itself. In previous research, we suggested that collective discontent can be conceptualized as an aspect of the current Zeitgeist. This discontent appears to be anchored not in concrete personal experiences or in objective facts about the state of society, but in a tacit consensus about "the things we all know to be true about our country/the system". To use a metaphor: the discontent we seek to capture is the person's belief that their country gets a collective "thumbs down" or "thumbs up" from its citizens. We proposed that this sense of collective societal discontent could be operationalized as a general factor (Z) that predicts how people express specific discontents with concrete issues (Van der Bles et al., 2015). In past research, we have provided evidence for the validity and reliability of the Z scale (Van der Bles et al., 2015). We also showed that Z predicted voting for extreme parties in the Netherlands (Van der Bles, Postmes, LeKander-Kanis, & Otjes, 2017).

In the present research, we want to make the next step: to demonstrate the cross-national validity and utility of our Z-scale. The aim of the present research is to develop an international Z-scale and test its validity and reliability across different countries. With such a measure, we will be able to investigate the incidence, antecedents, and consequences of societal discontent cross-nationally. In order to illustrate the utility of this new scale, the present research offers some preliminary explorations of international differences in Z.

A Zeitgeist of Discontent With Society?

In many countries at present, there is a vocal minority (and sometimes majority) that expresses a deep discontent with the state of society. People have the feeling that society is facing major problems with issues such as crime and safety, immigration, the economy, corruption, the state of education or health care. In some countries, there is distrust of and disgust with the political elite. But even though this sense that society is in decline can be quite pervasive, it remains elusive on closer inspection. Firstly, societal discontent appears to be unrelated to people's personal quality of life. The Netherlands offer an interesting example: even though the Dutch people consistently rank among the happiest in the world, a few years ago 57% of Dutch people thought the country as a whole was heading in the wrong direction (Bijl et al., 2015). Moreover, the issues at the heart of societal discontent are changeable: during the economic crisis, economic woes were seen as core concerns, but as the economy picked up the level of discontent remained high, with other issues moving into the foreground (e.g. immigration, crime, health care, fears about the loss of national identity; Dekker, de Blok, & de Hart, 2016; Dekker, den Ridder, & Schnabel, 2012). In our previous research, we proposed that societal discontent should be considered a phenomenon of its own, more or less independent of specific societal ills (e.g., immigration, the economy). We proposed that it would be more appropriate to consider this discontent as an aspect of the current Zeitgeist. Accordingly, we defined it as a collective-level general evaluation of the state and future of society: A general negative or positive evaluation of society that "we" as citizens in this society hold (Van der Bles et al., 2015). We operationalized it as a general factor, Z, that underlies collective-level evaluations of specific societal problems or issues. Z influences these evaluations of specific societal issues such as immigration, or crime: if there is a negative Z (i.e., a Zeitgeist of discontent) the evaluation of whether crime is a problem in society will be more negative too.

Our previous research showed support for this conceptualization and operationalization of collective societal discontent as a general factor Z. Our results showed that perceptions of a wide range of specific societal problems such as immigration, crime, or corruption were highly correlated with each other. A general factor Z strongly predicted how people responded to each individual item. Furthermore, we investigated the influence of Z on people's interpretation of information about society, as they would receive through the media. We found that Z influenced people's interpretation of newspaper headlines: People with more negative Z-perceptions thought negative newspaper headlines were more likely to be true, even though they presented factually incorrect information. When reading sensationalist news stories, for example of a man who laid dead in his apartment for two years before he was found, a more negative Z increased the amount of responsibility that people attributed in these negative

incidents to society as a whole (Van der Bles et al., 2015). Importantly, these media reports were only influenced by Z (the woes of society), not by the equivalent personal discontents (the woes of one's personal life).

Furthermore, we have examined the consequences of societal discontent for voting for extreme political parties (Van der Bles et al., 2017). This previous research showed that in the context of the 2015 Dutch provincial elections, Z predicted voting for both extreme left-wing and right-wing parties. People with a more negative Z were more likely to vote for an extreme political party, compared to mainstream political parties. Personal discontents did not predict voting for extreme parties. In addition, we examined two factors that we thought might contribute to within-country variation in Z: education level and media use. We found that lower education levels and more frequent use tabloid-style media were associated with a more negative Z. This suggests that there are multiple subgroups in society that can vary in their view of how society is doing: Within these "interpretative communities" created along societal fault lines such as education or media use, people's perceptions of collective discontent are shaped (Van der Bles et al., 2017).

In sum, in our research to date we have developed a Z-scale to measure collective societal discontent as an aspect of Zeitgeist and we have tested this in the Netherlands and in the United States. We know that Z predicts important outcomes such as voting for extreme political parties and attribution of responsibility for sensational news stories. Z is related to education level and media use. But ultimately, we also want Z to be useful to make international comparisons in order to learn about the antecedents, correlates, and consequences of societal discontent across the globe: What factors have contributed to the development of a widely shared discontent with society in so many different countries? To answer this question, we need a Z-scale that is suitable for research across countries.

Societal Discontent Across the Globe

In order to develop a Z-scale that is suitable for research across countries, we first need to establish to what extent societal discontent across different countries is comparable, and how we can compare it. At first glance, in many (Western) countries there seem to be similar discontents with the state of the country and distrust of the "political elite" among subgroups in society. If one delves deeper, particular discontents also seem to be influenced by factors that are unique to each country, for example because of its political system, recent economic developments, history, or cultural norms around various types of diversity. In the following section, we will discuss examples of societal discontent in various countries to highlight these similarities and differences.

Concerns with collective societal discontent have become widespread in 2016. The International Monetary Fund (IMF; 2016) identified "economic anxiety", "resentment of cross-border migration" and a "nationalist sentiment" as major concerns for worldwide economic development in their World Economic Outlook report and declining rates of economic growth as a contributor to political tensions in many countries. But if we zoom in on specific countries and developments, we also see that issues of concern may vary from place to place. In June 2016, a majority of British people voted for the U.K. to leave the EU in what is now called the "Brexit" vote. Survey research reported that for many people not only concerns about the EU, but also discontent with national politics, the national healthcare system, and worries about immigration were important reasons for people to vote for Brexit (Swales, 2016). In November 2016, Donald Trump was elected President of the U.S. based on a campaign in which his famous campaign slogan "Make America Great Again" implied the decline of America. In his campaign speeches, he repeatedly painted a dark picture of the major issues American society is facing. Whilst a consensus appears to be emerging among commentators (such as the IMF) that such expressions of collective societal discontent are becoming worldwide concerns, and whilst there are numerous similarities in the kinds of issues that people appear to be concerned with, there also appear to be considerable differences between countries that are worth taking a closer look at.

In some countries, expressions of collective societal discontent can be clearly linked to the effects that the 2008 global financial crisis had on the country's economy and living conditions. In for example Spain, Portugal, Greece, and Italy, countries that were hit hard by the economic crisis, anti-austerity movements organized mass demonstrations to protest against a wide range of problems in society: from unemployment, the political systems, the banks and financial elite, to welfare cuts and growing inequality. In Spain, this led to the establishment of a left-wing populist political party, Podemos, which was successful in 2014 and 2015 elections. In Greece, it led to a rise in support for both left-wing (The Coalition of the Radical Left/SYRIZA) and an extreme right-wing (Golden Dawn) political parties. In Italy, the Five Star Movement (M5S) political party was established, which considers itself to transcend the traditional left-right continuum and described as populist, anti-establishment and Eurosceptic.

However, in other countries comparable sentiments of collective discontent have occurred without being connected to economic issues. In some countries, such as the Netherlands and Belgium, a rise in support for extreme right-wing parties and general sense of discontent preceded the economic crisis. In other countries, such as France or Germany, a shift towards more extreme political ideas co-occurred with an economic upturn. In these four countries, immigration has been an important issue that people have expressed discontent about, both

in terms of economic and symbolic threats to society. Germany, which has been one of the best performing economies in the Eurozone in recent years, has also seen the rise of the PEGIDA movement and support for the extreme right-wing political party AfD. Fast-growing economies such as Chile or Brazil also had their share of protests movements expressing societal discontent. In 2013, public demonstrations in cities all over Brazil started off as protests against increases in public transport fares, but soon included discontentment with public health and education services, high cost of living, widespread corruption and national politics.

In sum, across countries it appears we are witnessing two trends at the same time. On the one hand, each country faces a unique mix of economic, political, cultural, and/or historic concerns. Looking in detail at each country individually would thus appear to be important in the analysis of societal discontent. But on the other hand, from a more abstract point of view there seem to be remarkable similarities across countries. In particular, societal discontent in every country appears to embrace the general sense that the country is not well. This general sense of national malaise appears to fuel the specific issues that are debated in different locations across the globe. Thus, it is clear that in order to operationalize Z, a broad range of issues will need to be sampled in order to be able to acknowledge differences between countries. At the same time, it seems worthwhile to operationalize the global sense of societal discontent that is reported to exist in many different countries.

Measuring Z Across Countries

Within fields such as cross-cultural psychology, it is widely recognized that measuring and comparing a psychological concept across countries is challenging. The core issue is that a concept that one measures across different cultures should have the same meaning (e.g., "anger" should have the same meaning in country A and B). Moreover, the scale on which it is measured should be used in the same way across cultures (e.g., "slightly agree" should have the same meaning in country A and B). If the concept does not have the same meaning, or the scale on which it is measured is interpreted differently across cultures, the comparison is flawed and drawing valid conclusions difficult.

With regard to the second issue of scale usage, we have developed the Z-scale in such a way that we can avoid the Likert-type scales typically used in psychological research (which use anchors such as "disagree" or "agree"). Instead we ask people to estimate how many out of the last 30 days the average person encountered a problem with specific issues (e.g., crime). We reasoned that making this estimate between 0 and 30 days has a higher likelihood of meaning the same thing across different nations, because the 24-hour "day" as a unit of measurement should have a similar meaning across cultures.

With regard to the first issue of the meaning of concepts across cultures, the Z-scale consists of a range of societal issues, which may or may not carry the same connotations across countries. Specific issues might be more or less relevant in a specific country, which might lead to difficulties in cross-national testing. In order to test how comparable scale usage is across cultures, a specific Confirmatory Factor Analysis (CFA) technique can be used: measurement invariance testing. This technique tests for differences in both meaning of the concept and interpretation of the scale across different countries. The present research will use measurement invariance testing to gain insight in whether and how we can validly measure societal discontent as a Zeitgeist cross-nationally.

The Present Research

In the present research, we develop an international measure of societal discontent and test its validity and reliability across different countries. First, we develop an international Z-scale and test it for measurement invariance to establish its validity for cross-national comparison. The international Z-scale is based on previous research (Van der Bles et al., 2015), in which we ask people to estimate how many out of the last 30 days the average person in their country has encountered a range of societal issues. As a starting point for scale development, we included 25 societal issues. We expected that the best fitting scale for each individual country would consist of a subset of these 25 items, which would be unique to each country. At the same time, we expected that we could construct an international scale with a subset of items that would fit reasonably well in most countries in our sample and obtain measurement invariance across these countries.

Subsequently, we investigate the convergent and divergent validity of the international Z-scale by examining its relationships with other relevant psychological constructs. Furthermore, we aim to measure Z internationally in order to be able to study the influence of country-level factors on the incidence and development of societal discontent. We will therefore also present preliminary analyses and results of questions that could be addressed with our international Z-scale.

Method

Participants and Procedure

A total of 6112 undergraduate university students participated in this research. They were recruited in 28 countries across the world: North America (Canada and the United States; two samples, from Tennessee and California); South America (Brazil and Chile); Europe (Belgium,

Denmark, Finland, France, Germany – there were two samples: one from former East-Germany and one from former West-Germany, Hungary, Italy, Latvia, Netherlands, Poland, Portugal, Spain, Switzerland, and United Kingdom); Africa (South Africa); Middle East (Iran); Asia (China, India, Indonesia, Japan, Malaysia, and Singapore); and Oceania (Australia). The sample size per country ranged from 74 for the United Kingdom to 557 for Indonesia. In total, 64% of the people in the sample were women (31% men; 5% missing) and the mean age was 22.53 years (*SD* = 6.35). Table 4.2 presents additional information for each sample and descriptive statistics of the data: the sample size, mean age of the participants, the percentage of female participants in the sample, and the language in which the questionnaire was administered.

Participants filled in a questionnaire about perceptions of their society, either via an online survey platform or via a hard copy version. The original questionnaire was prepared in English and translated into the native languages of the respective countries, if necessary using either back-translation or panel methods. The questionnaire consisted of a range of different measures; the findings for some of these have been published elsewhere (i.e., the Perceptions of Anomie Scale; Teymoori et al., 2016). The measures relevant for the present research are presented below. Data was collected between January 2014 and February 2015.

Measures

Zeitgeist of societal discontent: Z-scale. To measure the Zeitgeist of societal discontent as Z, we adapted a measure that has been developed in previous research, which assessed collective-level prevalence estimates of societal problems (Van der Bles et al., 2015). We instructed participants to think about the life of the average person in their country: "What did the life of an [country] person look like during the last 30 days? Think about the conversations that [citizens of country] may have had, the things that they did, the people and situations that they encountered. What kind of problems could an average [country] person have encountered during the last 30 days?" We then asked participants to estimate how many out of the last 30 days the average person in their country encountered problems with, or was bothered by, 25 societal issues (by listing a number from 0 to 30). These issues were selected to represent a broad range of issues that societies could face. The selection was made based on previous research (Van der Bles et al., 2015) and adapted to account for variation between countries in the types of issues that were salient or important at the time. The 25 societal issues are presented in Table 4.1.[1]

The score on this scale was calculated by averaging participants' estimates across the items

[1] In Singapore and one US sample, the items "lack of democracy" and "lack of freedom" were excluded from the questionnaire, leaving 23 items for the full scale.

(societal issues). The international Z-scale (of which the development is described below) consisted of six items: unemployment, corruption or fraud, discrimination, income inequality, injustice, and lack of respect. Thus, participants' score on this scale is the average of their estimates on these items (i.e., the number of days that the average person is perceived to have societal problems). A higher score means that the average citizen is perceived to have more problems and thus indicates a more pessimistic perception of the state of society (Z). Table 4.2 presents Cronbach's alpha per country for the international Z-scale; Cronbach's alpha for this scale in all countries taken together was .89.

Personal discontent. Personal discontent with societal issues was measured with a scale that we adapted from previous research (Van der Bles et al., 2015). Participants were asked to think about their daily life: "Think about the conversations that you had, the things that you did, the people and situations that you encountered during the last 30 days. What problems did you encounter in your personal life during these last 30 days?" We then asked participants to estimate how many out of the last 30 days they themselves encountered problems with, or were bothered by, the same 25 societal issues as listed for the Z-scale (by listing a number from 0 to 30). For the purpose of the present research, we constructed a scale using the same six items as the international Z-scale described above ($\alpha = .89$)[2]. Participants' score on this scale was calculated by averaging participants' responses to these six items. This Personal discontent scale can be used as a comparison to the Z-scale: It describes people's reported experiences with the same societal problems in their daily life.

Other relevant psychological constructs. We included measure of psychological constructs relevant for testing the convergent and divergent validity of Z. If not mentioned otherwise, measures were assessed using 7-point scales ranging from 1 = *strongly disagree* to 7 = *strongly agree*. These measures are reported in full the Supplementary Materials (Table 4A). Cronbach's alphas reported below have been calculated on the overall dataset.

Satisfaction with the state of society. We included a single-item measure of satisfaction with the state of society: "Overall, to what extent are you dissatisfied or satisfied with the way things are going in [country] today?" (1 = very dissatisfied to 7 = very satisfied; Pew Research Center, 2017).

Perceptions of the country's economic situation. Three items were constructed to measure perceptions of the present, future, and past economic situation of the country. These items were adapted items from Pew Research Center (2017): "How would you describe the current economic situation in [country]?" (1 = very bad, 7 = very good); "To what extent do you expect [country]'s economic situation to be worse, the same, or better in the next 3 years?" (1

[2] This Cronbach's alpha is calculated over the total dataset, thus data from all countries taken together.

= a lot worse, 7 = a lot better); and "To what extent would you describe [country]'s economic situation three years ago to be worse, the same, or better than it is now?" (1 = a lot worse, 7 = a lot better).

Perceived threat of immigrants: economic and symbolic. Three items were formulated to measure perceptions of immigrants as an economic threat, for example: "Immigrants take resources and employment opportunities away from [citizens of country]" (α = .80). Perceptions of immigrants as a symbolic threat were also measured with three items, for example: "[country's] norms and values are being threatened by the presence of immigrants" (α = .92).

Anomie. Perceptions of anomie, the breakdown of social fabric and of leadership in society, were measured using the Perceptions of Anomie Scale (PAS, Teymoori et al., 2016). This scale consisted of 12 items such as "People think that there are no clear moral standards to follow" and "The government uses its power legitimately" (α = .83).

Collective Angst. Angst for the future of society was measured with 7 items (item 1-3 adapted from Jetten & Wohl, 2012; and item 4-7 developed for this research), such as: "I am worried about the future vitality of [country]" and "People in [country] have the feeling that the country is heading in the wrong direction" (α = .84).

National nostalgia was measured with 4 items such as "I get nostalgic when I think back of [country] in past times" (Smeekes, Verkuyten, & Martinovic, 2015; α = .86).

National identification was measured with the four-item measure of social identification (Postmes et al., 2013), for example "I identify with [country]" (α = .86).

Social and political trust was measured with respectively three and five items adapted from the European Social Survey (European Social Survey, 2012). An example item for social trust was "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?" (-3 = *you can't be too careful* via 0 = neutral to 3 = *most people can be trusted*; α = .80). An example item for political trust was "I trust the government of [country]" (α = .91).

Satisfaction with life was measured with the 5-item Satisfaction with Life scale (Diener et al., 1985), for example, "I am satisfied with my life" (α = .85).

Indicators of country-level welfare.

The Human Development Index (HDI) was used as an indicator of the social and economic development of a country (United Nations Development Programme, 2015). It is a composite of three dimensions: health (life expectancy at birth), education (mean years of schooling and expected years of schooling), and standard of living (gross national income per capita (PPP)). Countries receive a value between 0 and 1, with a higher value reflecting higher levels

of human development. We used the HDI for the year 2014.

Inequality: Gini Index. We used the Gini Index as an indicator of inequality in a country. The Gini index measures the extent to which the distribution of income among people in a country deviates from a perfectly equal distribution (World Bank, 2017). Countries receive a value between 0, representing perfect equality, and 1, representing perfect inequality. We used the most recently available Gini index (World Bank estimate) for each country, which varied between 2008 (Japan) and 2013 (Brazil, Chile, Iran, and US); for Singapore, there was no recent index available.

Economy: Gross Domestic Product (GDP) per capita. The GDP per capita is a monetary measure of the value of all goods and services produced in a country divided by the midyear population (in current USD; World Bank, 2017). It is an indicator of a country's (economic) standard of living, with higher scores indicating a higher standard of living. We used the GDP per capita for 2014, the year in which (most of) our data was collected. GDP per capita is positively related to HDI, since one of the dimensions of HDI is gross national income per capita (PPP).

Economy: percentage annual growth of GDP per capita (average 2010-2013). In addition, we included the average percentage of annual growth of the GDP per capita over the four years before our data was collected (2010-2013; World Bank, 2017). This is an indicator of economic performance within a country's recent historic context: Whether the economy/standard of living have objectively increased or decreased in recent years. There was no estimate available for Iran.

Results

Testing the Z-model

As the first step of scale development, we wanted to test our operationalization of the Zeitgeist of societal discontent as a general latent factor Z across all 28 countries in our dataset. On the basis of our theory (see Van der Bles et al., 2015) we predicted that in each of these countries, one latent factor Z would underlie people's responses on all 25 items representing a diverse range of societal issues. However, this full Z-model (25 items predicted by one latent factor) has relatively high complexity. The size of our samples for most countries was too small to reliably estimate a model with this number of parameters. This means that results are not very reliable and should be interpreted with caution. We will provide a short overview below; for interested readers, more details are provided in the Supplementary Materials.

We conducted a series of Confirmatory Factor Analyses (CFAs) to test our Z-model (with

maximum-likelihood estimation with robust standard errors and a robust Satorra-Bentler scaled test statistic, to account for multivariate non-normality) in R 3.3.1 with the Lavaan package (Rosseel, 2012). We inspected the following indices of model fit: the comparative fit index (CFI; value > .90 indicates acceptable fit) and the root-mean-square-error-of-approximation (RMSEA; value < .08 indicates acceptable fit; Van de Schoot, Lugtig, & Hox, 2012). The results showed that the initial model generally did not fit well (e.g., CFI ranged between .59 for Portugal and .94 for India. RMSEA ranged between acceptable fit of .08 for the Netherlands, Canada, Germany, Finland, Japan, Singapore, India, and Belgium and poor fit of .12 for Portugal).

In addition to providing information about model fit, CFA allows us to test how much of the variance in each item is explained by latent factor Z (R^2). We can average the explained variance across all items to obtain an indicator of the average amount of variance that the latent factor explains in the items (i.e., the average R^2). In other words, we can estimate how much of the variance in people's responses to societal issues on average is explained by a general factor Z. The average R^2 values for the initial model ranged from .27 for Portugal and .29 for Latvia to .55 of Malaysia and .58 for India. However, as discussed above, we have to be careful interpreting these values for the initial model due to the high model complexity. Estimated reliability (Cronbach's alpha) was high and ranged from α = .89 for Portugal to α = .97 for India.

National Z Scales. The next step was to investigate the Z-model for countries separately in order to gain a better understanding of overlap or differences in the relationships between the general factor Z and the items representing societal issues. As an example, we present the results of four countries in more detail: the Netherlands, Germany, the United States, and Spain. For each country, we will discuss the CFA results of the full scale and present CFA results for a better fitting national Z-scale. We will also examine the average R^2, as an indicator of the amount of variance in people's responses that is explained by general factor Z.

To illustrate the scale development process for national Z-scales, we selected four countries with sufficiently large sample sizes for CFA. We chose to start with the Netherlands, since the scale and theoretical framework were first developed in this context (Van der Bles et al., 2015). Germany is often seen as having a similar culture as the Netherlands, and, therefore, it is an interesting to validate the results obtained in the Dutch sample with the results from the German sample. We already tested our model using data from the U.S. (Van der Bles et al., 2015) and although these are all Western countries, there are many societal and cultural differences between the U.S., the Netherlands, and Germany. To further generalize our results, we used data from Spain; this is a European country that aside from cultural differences also was more strongly affected by the global financial crisis in 2008, which may have had an effect

on the Zeitgeist. The results of these analyses will provide insight in the best way to measure the Z in every country separately; comparing them will provide insight in how comparable these measures (and Z) are across countries.

The Netherlands. As Table 4.1 shows, the full Z model had a poor to marginal fit to the data in the Dutch sample (CFI = .74; RMSEA = .08). Inspection of the factor loadings showed that although all factor loadings are significantly different from zero, for several items factor loadings were relatively low. The variation in factor loadings may suggest that Z is less predictive of people's responses to some items, or that these items are less important in determining the content of Z. For example, global warming was related to Z with a factor loading of .36, while the economy was more strongly related to Z with a factor loading of .68. This suggests that the Z is more closely associated with economic issues than with issues of global warning. We developed a better fitting scale specifically for the Dutch context, based on both empirical and theoretical considerations. We selected items that were strongly related to Z (i.e., high factor loadings and R^2s), and based on our theoretical considerations we aimed for the selection of a wide range of issues that represent various ways in which society can do well or badly (e.g., ranging from representing stable social relation and adherence to norms, how society functions economically, to effective and legitimate politics). The Dutch Z-scale consisted of 11 items that are presented in Table 4.1. The factor loadings ranged between .54 and .72 and the model fit of this scale was good, CFI = .93, RSMEA = .06, 90% Confidence Interval (CI)[.04; .08]. On average, the general factor Z explained 41% of the variance in responses to these societal issues.

Germany. Next, we examined the CFA results in the German sample and constructed a better fitting scale for the German context. Table 4.1 presents the CFA results. The CFA results for the full scale showed that the Z-model had a poor to marginal model fit (CFI = .72; RMSEA = .08). Based on the same empirical and theoretical considerations as before, we developed a better fitting scale for the German sample. This scale consisted of 10 items, presented in Table 4.1. The model fit of this scale was good, CFI = .95, RSMEA = .06, 90% CI[.04; .08]. Factor loadings ranged from .51 to .75. On average, the latent factor Z explained 41% of the variance in people's responses to these items.

When comparing the scales developed for the Dutch and German samples, it is interesting that there is considerable overlap in terms of items that create the best scale for each country, although the loadings differed slightly between the countries. For example, while in the Dutch context the item "the economy" was strongly related to the Z and therefore considered by us as an important item (factor loading in the full model = .68), it was marginally less important in the German context (.54, respectively). Vice versa, in the German sample "corruption or

Table 4.1

Confirmatory Factor Analysis Results of the Full scale and National Z-scale for Example Countries.

	The Netherlands				Germany				United States				Spain			
	Full scale		New scale		Full scale		New scale		Full scale		New scale		Full scale		New scale	
	Load	R^2	Load	R^2	Load	R^2	Load	R^2	Load	R^2	Load	R^2	Load	R^2	Load	R^2
Crime	.54	.29			.41	.17			.55	.30	.53	.28	.37	.14		
Immigration	.54	.29	.54	.30	.54	.29	.51	.26	.52	.27			.52	.27		
Global warming	.36	.13			.44	.19			.55	.31			.35	.12		
The economy	.68	.46	.71	.50	.54	.29			.62	.38	.59	.34	.68	.46	.74	.55
Selfishness or egotism	.44	.19			.56	.32	.56	.31	.57	.33	.55	.31	.35	.12		
Privacy	.60	.36	.59	.35	.57	.33			.56	.31			.39	.15		
Unemployment	.66	.44	.67	.44	.64	.41	.65	.42	.73	.53	.74	.54	.75	.57	.81	.66
The government	.70	.49	.72	.51	.66	.44			.61	.37			.76	.58	.84	.71
Corruption or fraud	.49	.24			.61	.37	.58	.34	.64	.41	.64	.41	.80	.64	.87	.75
Lack of democracy	.43	.18			.59	.35							.69	.48	.61	.37
Lack of freedom	.44	.19			.52	.27							.64	.41		
Overregulation	.44	.20			.52	.27			.60	.37	.61	.38	.56	.32		
Discrimination	.69	.48	.69	.47	.69	.47	.74	.55	.74	.55	.78	.61	.63	.40	.51	.26
Alcohol or drugs abuse	.55	.30			.59	.35	.65	.42	.71	.50	.74	.55	.41	.17		
Indecent behavior	.62	.38	.59	.35	.67	.45	.75	.56	.63	.40			.48	.23		
Income inequality	.67	.45	.69	.48	.67	.45			.66	.44	.65	.42	.71	.51	.74	.55
Injustice	.69	.48			.69	.48	.71	.50	.75	.56	.78	.61	.80	.63	.78	.60
Social cohesion	.56	.32	.54	.29	.46	.21			.64	.41			.54	.29		
Unequal opportunities	.66	.44	.63	.40	.65	.43	.62	.38	.73	.53	.74	.55	.73	.53	.70	.49
Lack of respect	.69	.47			.62	.39			.74	.55	.77	.60	.62	.38		
Quality of police work	.58	.33			.57	.32			.69	.48			.54	.30		
Quality politicians' work	.63	.40	.61	.37	.62	.38	.53	.28	.56	.31			.63	.40	.66	.44
Quality of journalism	.53	.28			.44	.19			.55	.30			.52	.27		
Quality of education	.59	.34			.55	.30			.59	.34			.71	.51		
Quality of health care	.63	.40			.58	.34			.61	.37			.68	.47		
Average R^2		.34		.41		.34		.41		.41		.47		.38		.55
CFI		.74		.93		.72		.95		.83		.92		.76		.95
RMSEA		.08		.06		.08		.06		.09		.09		.10		.08

Note. "Load" = factor loading. Items in bold are included in International Z-scale. Sample sizes are: Netherlands, N = 208; Germany, N = 322; US, N = 319; Spain, N = 277.

fraud" was an important item (.61) while being somewhat less important in the Dutch sample (.49).

United States. Next, we examined the CFA results and constructed a better fitting scale for the United States sample. The CFA results of the full Z-scale in the U.S. sample were slightly better than in the Dutch or German sample, but still indicated poor to marginal model fit: CFI = .83, RMSEA = .09. The new U.S. scale consisted of 12 items, presented in Table 4.1, with CFI = .92, and RMSEA = .09, 90% CI[.07;.10]. Factor loadings ranged between .53 and .78. On average, the general Z factor explained 47% of the variance in people's responses to these items. Again, there was substantial overlap in items with the scales for the German and Dutch samples. An interesting difference was that in the United States, the item "lack of respect" had one of the highest factor loadings at .77, whereas it was not incorporated in the Dutch and German scales.

Spain. Lastly, we examined the CFA results and constructed a better fitting scale for the Spanish sample. The model fit indices of the CFA for the full scale indicated poor model fit (CFI = .76; RMSEA = .10). The better fitting scale for the Spanish sample consisted of 10 items, presented in Table 4.1. Modification indices indicated a strong association between items "lack of democracy" and "discrimination", so the residuals of these items were allowed to covary. Again, the model fit of this scale was good, with CFI = .95, and RMSEA = .08, 90% CI[.07;.10]. Factor loadings ranged between .51 and .87. On average, the general factor Z explained 55% of the variance in people's responses to these items. Interesting is that in the Spanish sample the item "crime" was not very strongly related to factor Z (.37 in the full model) compared to other items in the Spanish sample but also not compared to the other countries; this suggests that the Zeitgeist of discontent is less closely related to issues of crime and safety in this country.

In short, in the best fitting scale for each example country, there were respectively two, zero, three, and one item(s) that were unique to the scales for the Dutch, German, U.S., and Spanish sample. All other items in the best fitting scales occurred in the scale of at least one other example country as well. This indicates that there are subtle differences between countries in which issues are more or less salient or central to their Zeitgeist of societal discontent. If one wants to measure Z in one particular country, it is important to take this into account. However, in order to compare Z across countries, it is important to have a scale that is able to measure the same construct in the same way across these countries. So far, we have shown that the content of the scales may differ somewhat across countries, but that there is also substantial overlap in the issues that are affected by Z. Next, we examine the possibility to construct a scale that intends to measure Z across all 28 countries in our sample and test it for measurement invariance.

International Z-Scale and Testing Measurement Invariance

Selecting items and refining the international Z scale. In order to create a Z-scale that was internationally applicable, we selected a subset of the initial 25 items. The aim of this selection was to create a scale that measured Z in the same way across different countries; that is, we tried to obtain measurement equivalence (Chen, 2008; Owe et al., 2013; Van de Schoot et al., 2012). In selecting items for this scale, we took into account empirical considerations, eliminating items that failed to perform comparably across our national samples, as well as theoretical considerations, ensuring variation in the range of societal issues represented in our items. Based on the CFA results for separate countries (as reported above), we made a first selection of items that seemed to perform relatively comparably across all national samples. We tested and refined this selection through multiple iterations of CFAs in various national samples as well as in the total sample. As an illustration of this process, one example of an item that failed to perform comparably across national samples was immigration (e.g., factor loadings ranged from .11 in Pakistan to .75 in Denmark). Given that there are large differences between the countries in our sample in terms of the amount of and type of immigration that they receive, we were not surprised to find this reflected in large variations between people's perceptions of immigration as a societal problem in different countries. This item was therefore excluded from the final international scale.

Thus, we selected items for the final scale for which we could establish both empirically and theoretically that they had similar meanings across the various national samples, and together represented a range of societal issues in order to capture the Zeitgeist of societal discontent. Accordingly, the international Z-scale consisted of the following 6 items: unemployment, corruption or fraud, discrimination, income inequality, injustice, and lack of respect. Modification indices in preliminary CFAs suggested strong associations in most groups between the items unemployment and corruption, and the items discrimination and lack of respect. We therefore allowed residuals of these two pairs of items to covary in the final measurement model.

Testing for measurement invariance. Next, we investigated the measurement invariance of this international scale across the different national samples in our study. That is, we tested whether this scale measured the same construct (Z) in the same way in all our national samples. To test for measurement invariance, often the following different types or levels of measurement invariance are discussed (e.g., Chen, 2008; Van de Schoot et al., 2012): configural invariance, metric invariance, and scalar invariance. These levels represent an ascending order of strictness of the assumptions of equivalence. The first step is to test for *configural invariance*, that is, it is investigated whether the factor structure of the items is the same in

each group (in our case: the national sample), and whether the same item is associated with the same factor (that is whether the same number of factors underlie the response behaviour across different groups), with all items relating to the latent factor(s) in the expected way. *Metric or factor invariance* establishes whether participants across groups attribute the same meaning to the latent construct under study, by testing whether the factor loadings are equal across groups. *Scalar invariance* establishes whether the meaning of the construct and the absolute levels (or origin) of the underlying items are comparable across groups, by testing whether the factor loadings and intercepts are equal across groups. Configural invariance is necessary in order to test for metric or scalar invariance. When metric invariance is established, one can validly compare correlational patterns across groups. When scalar invariance is established, group means can be validly compared because the origins or absolute levels of the underlying items are the same (Chen, 2008; Van de Schoot et al., 2012).

Establishing configural invariance. We aimed to test whether the six-item international scale measured Zeitgeist in the same way in all countries in our study. First, we tested for configural invariance by conducting CFAs to test our measurement model in each national sample separately. Our measurement model included one latent factor (Z) underlying all six items (unemployment, corruption or fraud, discrimination, income inequality, injustice, and lack of respect) and covariances between the items unemployment and corruption, and the items discrimination and lack of respect (because modification indices in preliminary analyses suggested strong associations in most groups). The results of these CFAs are presented in Table 4.2.

The results showed that the model had a good to excellent fit in 20 national samples (CFI = .96 - 1.00; RMSEA = .08 - .00): Australia, the Netherlands, the U.S., Spain, Italy, Iran, Canada, Germany, Denmark, Finland, Japan, India, Pakistan, Chile, Switzerland, Indonesia, Belgium, Poland, Brazil, and South Africa. In the other eight samples, the CFI indicated good fit of the model (CFI = .93 - .98), but the RMSEA indicated marginal or poor fit (RMSEA = .09 - .12): China, U.K., France, Malaysia, Singapore, Latvia, Portugal, and Hungary. For these samples, model fit (especially RMSEA) could be improved substantially if one or both residual covariances were not included in the measurement model. Note that for 18 countries, sample size is small for these types of analyses (i.e. below N = 200; see Table 4.2) and that we should interpret these results with care. Cronbach's alphas were acceptable or good in all nations given that these scales were used for research purposes and not for high-stakes individual decision-making (alphas ranged from .72 in Denmark to .92 in Malaysia). Thus, we found support for configural invariance of our scale across the national samples.

Table 4.2

Descriptive Information and Confirmatory Factor Analysis Results per Country

		Age				CFA international Z-scale						
Country	*N*	Mean	SD	% F	Language	χ^2	df	CFI	RMSEA	90% CI	R^2	α
Indonesia	557	21.42	4.87	77	Indonesian	30.84	7	.98	.08	.05; .11	.49	.85
South Africa	451	21.10	5.67	81	English	11.69	7	1.00	.04	.00; .07	.48	.85
Switzerland	448	24.13	5.13	64	French	24.00	7	.96	.08	.05; .10	.50	.84
Japan	382	18.81	0.99	57	Japanese	20.32	7	.96	.07	.05; .10	.44	.82
Germany	322	22.05	3.21	70	German	17.25	7	.97	.07	.03; .11	.45	.83
US	319	21.06	5.08	59	English	17.46	7	.99	.07	.03; .11	.52	.87
Spain	277	35.66	10.72	73	Spanish	17.25	7	.98	.07	.03; .12	.52	.86
Belgium	242	20.37	4.43	22	French	7.09	7	1.00	.01	.00; .07	.48	.85
Canada	233	20.35	4.25	77	English	7.93	7	1.00	.02	.00; .07	.50	.86
Netherlands	208	19.40	1.86	79	Dutch	11.62	7	.98	.06	.00; .10	.42	.81
Singapore	193	21.66	1.74	66	English	18.37	7	.93	.09	.05; .13	.45	.82
Poland	180	27.72	9.78	72	Polish	11.60	7	.99	.06	.00; .11	.46	.84
Iran	170	22.49	2.85	54	Persian	10.28	7	1.00	.05	.00; .11	.60	.90
Denmark	164	22.68	3.62	71	Danish	3.31	7	1.00	.00	.00; .00	.37	.72
Portugal	160	22.24	5.58	71	Portuguese	18.46	7	.96	.10	.05; .15	.42	.80
Hungary	160	24.75	7.32	18	Hungarian	23.25	7	.96	.12	.07; .17	.51	.85
Italy	156	25.87	9.12	65	Italian	11.47	7	.98	.06	.00; .11	.48	.83
China	151	21.62	2.51	79	Mandarin	15.13	7	.97	.09	.03; .14	.46	.84
Chile	151	20.64	2.92	33	Spanish	5.33	7	1.00	.00	.00; .07	.57	.87
France	150	19.53	2.56	83	French	21.61	7	.94	.12	.07; .18	.43	.81
Pakistan	150	19.29	1.64		Urdu	1.11	7	1.00	.00	.00; .00	.43	.82
Australia	149	22.17	5.10	72	English	6.96	7	1.00	.00	.00; .08	.40	.78
Latvia	149	23.44	5.68	53	Latvian	15.81	7	.95	.09	.04; .15	.38	.77
Brazil	146	23.99	7.08	62	Portuguese	11.43	7	.98	.07	.00; .12	.50	.84
India	145	20.47	1.30	66	Hindi/English	8.55	7	1.00	.04	.00; .11	.62	.91
Finland	113	25.58	7.04	77	Finnish	8.67	7	.98	.05	.00; .11	.43	.77
Malaysia	112	23.20	5.70	85	Malay	19.01	7	.98	.12	.07; .18	.67	.92
UK	74	21.22	5.64	76	English	10.77	7	.96	.09	.00; .15	.51	.86
Overall	6112	22.53	6.35	64		73.79	7	1.00	.04	.03; .05	.56	.89

Note. Table is sorted based on sample size. % F = percentage female participants in the sample. CFI = comparative fit index (value > .90 indicates acceptable fit); RMSEA = root-mean-square-error-of-approximation (value < .08 indicates acceptable fit); 90% CI = 90% confidence interval of the RMSEA; R^2 = the average R^2.

Testing metric and scalar invariance. Next, we tested our six-item scale for more stringent levels of measurement invariance. We tested for metric invariance by restricting the factor loadings of the model to be equal across groups, in order to establish whether people across national samples attribute the same meaning to Zeitgeist. Scalar invariance was tested by restricting both factor loadings and intercepts to be equal across groups, in order to establish whether the meaning and the levels of the underlying items of latent factor Z were equal across the national samples.

First, we conducted a multiple-group CFA for the six-item measurement model (as specified before) for all countries simultaneously, as a baseline multiple-group model without re-

Table 4.3

Results of the Measurement Invariance Analyses of the International Z-Scale

Model	χ^2	*df*	CFI	RMSEA	RMSEA 90% CI LL	RMSEA 90% CI UL
Model 1, configural invariance	367.74***	196	.98	.06	.06	.07
Model 2, factor loadings constrained	791.29***	331	.95	.08	.07	.09
Model 3, all loadings and intercepts constrained	4348.66***	466	.59	.20	.19	.20
Model 4, loadings and 2 intercepts constrained	966.82***	358	.94	.09	.08	.10

Note. Loadings refer to factor loadings. CFI = comparative fit index (value > .90 indicates acceptable fit); RMSEA = root-mean-square-error-of-approximation (value < .08 indicates acceptable fit); 90% CI = 90% confidence interval, with LL = lower limit and UL = upper limit.

strictions on factor loadings or intercepts. As seen in Table 4.3, the results of this analysis (Model 1) indicated good model fit: CFI = .98, and RMSEA = .06, 90% CI[.06;.07]. Second, we tested for metric invariance by examining the impact on model fit of constraining the factor loadings to be equal across all groups (Model 2). Third, we tested for scalar invariance by examining the impact on model fit of constraining both factor loadings and intercepts to be equal across all groups (Model 3). Following Owe et al. (2013, p. 31), we determined that "if the fit of the constrained model remains acceptable, it is preferred to the unconstrained model because it is more parsimonious, and the hypothesis of invariance can be considered tenable" (Davidov, Schmidt, & Schwartz, 2008; Little, Card, Slegers, & Ledford, 2007). Table 4.3 presents the results.

The results supported the hypothesis of metric invariance: Model 2 had good to acceptable model fit: CFI = .95, and RMSEA = .08, 90% CI[.07;.09]. It is therefore preferred over the less parsimonious baseline model. This suggests that across national samples, people attribute the same meaning to our latent construct Zeitgeist. Thus, we can validly compare correlational and predictive patterns across these national samples.

However Model 3, testing scalar invariance, had a poor fit to the data: CFI = .59, and RMSEA = .20, 90% CI[.19;.20]. This suggests the full scalar invariance could not be established. Therefore, we continued to aim to establish partial scalar invariance: testing whether a model with factor loadings and part of the intercepts constrained to be equal across groups (allowing some intercepts to vary) would provide good fit. Previous research suggests that in order to validly compare means across countries, at least two intercepts should be constrained to be equal across countries (Baumgartner & Steenkamp, 1998; Byrne, Shavelson, & Muthén, 1989; Van de Schoot et al., 2012). Based on the modification indices, we chose to constrain the inter-

cepts of the items "discrimination" and "lack of respect", and release the intercepts of the other items (unemployment, corruption, income inequality, and injustice; Model 4). The results suggest some support for partial scalar invariance, with good to marginally acceptable model fit: CFI = .94, and RMSEA = .09, 90% CI[.08;.10]. This suggests that mean-level comparisons across national samples can be made, although with caution.

Means of the international Z-scale. Now we have established measurement invariance of our international Z-scale, we compared correlations and means across the countries in our sample. Table 4.4 presents the means and standard deviations of the international Z-scale per country. A high Z-score means that on average, people perceived more collective-level societal problems (on a scale of 0 to 30 days), thus indicating higher levels of societal discontent.

Societal discontent, measured as Z, was highest in Brazil (M = 21.02, SD = 7.33) and lowest in Denmark (M = 5.49, SD = 3.86). Thus, in Brazil, participants indicated that the average person in their country encountered societal problems on average on 21.02 out of the last 30 days, while in Denmark this was 5.49 out of the last 30 days. The ranking of the countries in our sample on Z presented interesting patterns: Countries such as Indonesia, Pakistan, and Italy have comparably high mean scores on Z, as do Iran, France, Portugal, and Malaysia. This suggests that people in these countries indicate similar levels of collective discontent with society. Table 4.4 also presents the mean scores on the 6-item personal discontent measure, which was highest in Brazil (M = 17.65, SD = 8.35) and lowest in Japan (M = 2.85, SD = 4.36).

Investigating the Convergent and Divergent Validity of Z

Furthermore, a measurement invariant international Z-scale offers opportunities for investigating the relationship of Z with other constructs. In the following sections, we illustrate this by examining the relationships of Z with related psychological constructs, and with indicators of country-level welfare. The associations between Z and other relevant psychological constructs can inform us about the convergent and divergent validity of Z. The present research included constructs that we propose to be part of or influenced by Zeitgeist (perceptions the country's economic situation and of immigration), and measures of constructs that we expected to be related to Zeitgeist but to be (psychologically) distinct concepts (personal discontent with societal issues, perceptions of anomie, collective angst for the future of society, national nostalgia, and political trust). In addition, we included perceptions of people's own life (satisfaction with life, identification with their country). We expected these to be weakly related to Zeitgeist at the individual level, because Zeitgeist reflects a collective-level perception of society and should therefore not be strongly influenced by people's personal beliefs about their personal life or only reflect beliefs of people that feel distanced from society.

Table 4.4

Mean Scores of the International Z-scale and Personal Discontent and Indices of Country-Level Welfare

		Int. Z		Personal Disc.					
Country	*N*	Mean	SD	Mean	SD	HDI	Gini	% gr GDP	GDP
Brazil	146	**21.02**	7.33	17.65	8.35	0.755	52.9	3.13	11729
Pakistan	150	**19.72**	6.58	12.85	8.02	0.538	29.6	0.90	1315
Indonesia	557	**19.19**	6.90	15.00	8.15	0.684	35.6	4.60	3500
Italy	156	**18.02**	6.20	15.71	7.48	0.873	35.2	-1.05	35180
Hungary	160	**17.91**	7.10	15.53	7.95	0.828	30.6	1.00	14022
South Africa	451	**17.47**	7.74	12.82	8.35	0.666	63.4	1.10	6472
Spain	277	**17.09**	6.77	15.49	7.45	0.876	35.9	-1.45	29719
Malaysia	112	**16.89**	9.15	12.85	9.29	0.779	46.3	4.05	11307
Portugal	160	**16.80**	5.98	13.69	7.29	0.830	36.0	-1.00	22124
France	150	**16.07**	6.86	11.09	7.87	0.888	33.1	0.73	42547
Iran	170	**16.04**	9.14	13.60	9.53	0.766	37.4		5443
India	145	**14.69**	8.73	17.53	7.16	0.609	33.9	5.90	1577
Latvia	149	**14.52**	6.24	8.99	6.80	0.819	35.5	3.95	15692
Belgium	242	**13.88**	7.14	8.59	6.62	0.890	27.6	0.28	47300
Poland	180	**13.57**	7.19	9.39	7.28	0.843	32.4	2.98	14337
US	319	**12.33**	7.48	6.83	6.64	0.915	41.1	1.15	54399
Chile	151	**11.51**	7.57	8.81	6.66	0.832	50.5	4.13	14566
China	151	**11.33**	6.44	4.84	5.79	0.728	42.1	8.38	7587
Germany	322	**8.98**	5.37	5.80	5.12	0.916	30.1	2.03	47767
UK	74	**8.92**	5.78	4.98	5.74	0.907	32.6	0.98	46279
Australia	149	**8.45**	5.38	6.24	5.47	0.935	34.9	1.00	61996
Singapore	193	**7.63**	5.21	5.09	4.99	0.912		5.35	56007
Switzerland	448	**7.11**	5.87	4.55	5.08	0.930	31.6	0.83	85611
Netherlands	208	**6.98**	4.51	3.50	3.47	0.922	28.0	-0.03	52139
Canada	233	**6.62**	6.02	3.40	4.55	0.913	33.7	1.38	50186
Finland	113	**6.16**	4.40	3.69	3.99	0.883	27.1	0.38	49865
Japan	382	**5.80**	5.35	2.85	4.36	0.891	32.1	1.95	36153
Denmark	164	**5.49**	3.86	3.88	3.74	0.923	29.1	0.20	61331
Overall	6112	12.84	8.25	9.37	8.26				

Note. Int. Z = International Z-scale; Personal Disc. = Personal discontent; HDI = Human Development Index; Gini = Gini Index; GDP = Gross Domestic Product per capita in current US$; % gr GDP = percentage annual growth of the GDP per capita (average over 2010-2013).

Table 4.5 presents the individual-level (in the lower-left hand panel) and country-level (in the upper-right hand panel) correlations between scores on the international Z-scale and the relevant psychological constructs. At country-level, these results provide support for the convergent validity of Z: countries with higher Z-scores (more societal discontent) also had higher levels of perceptions of anomie or societal breakdown (r = .86, p < .001), collective angst for the future of society (r = .77, p < .001), and national nostalgia for the past (r = .50, p = .008). In addition, countries with a higher Z (more societal discontent) had lower levels of social trust (r = -.86, p < .001), political trust (r = -.71, p < .001), satisfaction with society (r = -.78, p < .001), and more negative perceptions of the current state of the economy (r = -.68, p < .001) and more negative expectations for the future economy (r = -.42, p = .026). At country-level, Z was not related to perceptions of the past economic state, perceived threat of immigration, or national identification. Countries with a higher Z (more societal discontent) had lower levels of life satisfaction (r = -.42, p = .011).

At the individual level (i.e. across all countries) results provided support for Z as a distinct psychological construct. People's Z-scores (perceived societal discontent) were moderately related to perceptions of collective angst (r = .35, p < .001), anomie (r = .43, p < .001), or national nostalgia (r = .21, p < .001), indicating that Z forms a related but distinct psychological construct. Z was also moderately related to people's satisfaction with the state of society (r = -.39, p < .001), perceptions of the state of the economy (r = -.36, p < .001), social trust (r = -.34, p < .001), and political trust (r = -.33, p < .001). Across all countries, Z was weakly related to individuals' perceptions of immigrants as an economic (r = .07, p < .001) or symbolic threat (r = .09, p < .001), and perceptions of the past (r = .07, p < .001) and future (r = -.13, p < .001) state of the economy. It was also weakly related to national identification (r = -.09, p < .001), and satisfaction with life (r = -.15, p < .001). Thus, these findings provide further evidence for the convergent and divergent validity of Z, representing societal discontent.

Zeitgeist and Country-Level Indicators of Nations' Welfare

The associations between Z and indicators of country-level welfare can shed some light on the relationship between the objective living conditions in a society and people's generalized perception of their society's wellbeing. We included three different kinds of indicators of objective living conditions to explore how these related to people's perceptions of the condition their country is in: the Human Development Index (HDI), Gini Index of income inequality, and the GDP per capita and percentage annual growth of the GDP per capita. Table 4.4 provides an overview of these indices per country. We chose these indicators because they reflect (lay) theories about factors contributing to societal discontent: difficult living conditions, high and ris-

Table 4.5

Correlations between Scores on International Z-Scale and Relevant Psychological Constructs at Individual- and Country Level of Analysis

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. International Z		**.93**	**-.78**	**-.68**	**-.42**	.23	.17	.19	**.86**	**.77**	**.50**	-.18	**-.86**	**-.71**	**-.48**
2. Personal discontent	**.69**		**-.79**	**-.67**	-.32	.27	.15	.15	**.80**	**.74**	**.46**	-.16	**-.78**	**-.66**	**-.43**
3. Satisfaction with society	**-.39**	**-.39**		**.89**	.36	-.01	-.06	.03	**-.88**	**-.80**	-.32	.32	**.62**	**.85**	**.58**
4. Economy present	**-.36**	**-.34**	**.64**		.35	.02	-.15	-.06	**-.76**	**-.79**	**-.44**	.17	**.49**	**.72**	**.57**
5. Economy future	**-.13**	**-.12**	**.31**	**.28**		**-.38**	.28	.13	**-.55**	**-.65**	.02	.30	**.47**	**.58**	.27
6. Economy past	**.07**	**.06**	**-.06**	**-.04**	**-.18**		-.20	-.05	.17	.27	.04	-.09	-.16	-.07	.02
7. Economic threat	**.07**	**.07**	**-.05**	**-.11**	.02	-.02		**.92**	.06	.09	**.74**	**.43**	-.18	.27	-.24
8. Symbolic threat	**.09**	**.08**	**-.04**	**-.09**	.02	-.01	**.75**		.08	.10	**.79**	**.41**	-.22	.26	-.27
9. Anomie	**.43**	**.40**	**-.55**	**-.45**	**-.32**	**.08**	**.10**	**.10**		**.85**	**.39**	-.31	**-.78**	**-.88**	**-.68**
10. Collective Angst	**.35**	**.34**	**-.54**	**-.48**	**-.39**	**.15**	**.13**	**.12**	**.54**		**.41**	-.18	**-.67**	**-.76**	**-.55**
11. Nostalgia	**.21**	**.20**	**-.17**	**-.24**	-.01	**.05**	**.33**	**.36**	**.17**	**.25**		**.50**	**-.44**	-.04	-.36
12. Identification	**-.09**	**-.10**	**.24**	**.13**	**.20**	**-.04**	**.17**	**.18**	**-.29**	**-.10**	**.25**		.11	**.49**	.27
13. Social trust	**-.34**	**-.33**	**.29**	**.23**	**.18**	**-.08**	**-.13**	**-.15**	**-.46**	**-.31**	**-.15**	**.15**		**.58**	**.45**
14. Political trust	**-.33**	**-.33**	**.56**	**.44**	**.33**	**-.05**	**.03**	**.04**	**-.64**	**-.47**	**-.03**	**.33**	**.32**		**.60**
15. SWL	**-.15**	**-.19**	**.31**	**.25**	**.15**	-.02	**-.06**	**-.08**	**-.30**	**-.24**	**-.09**	**.22**	**.26**	**.32**	

Note. The lower-left hand panel presents individual-level correlations and the upper-right hand panel presents country-level correlations. Significant correlations with p-values below $p < .05$ are printed in bold. For individual-level correlations total N = 6112; in case of missing data, pairwise deletion has been used. For country-level correlations N = 28 (N = 27 for Nostalgia).

ing income inequality, and a worsening economy. The aim of these analyses is not to provide definitive answers to these questions, but to show examples of what we can do with an international measure of Zeitgeist in order to gain a better understanding of societal discontent.

Economy: percentage growth of GDP per capita (average 2010-2013). We were interested in growth in GDP per capita as an indicator of recent economic developments in a country. Many (lay) explanations point at economic explanations as a cause for societal discontent, for example because (large) parts of society have not experienced the benefits of the economic growth in the past 30 years or because there has been little economic growth in some countries since the 2008 global financial crisis (e.g., IMF, 2016). We were interested in exploring the relation of Z with growth in GDP per capita to gain some first insights in the relationship between economic performance and societal discontent. Figure 4.1 presents a scatterplot of the relationship between Z and percentage of annual growth in GDP per capita (average of 2010-2013). As Figure 4.1 clearly shows, economic growth and Z were not significantly related to each other (r = .02, p = .923). This suggests that collective societal discontent in a country is not simply a reflection of whether a country recently experienced economic upturn or downturn.

Economy: GDP per capita. We were interested in GDP per capita as a (relatively stable) indicator of the economic standard of living of a country. We would expect that a country's economic standard of living would be related to societal discontent, as it relates more generally to quality of life. Figure 4.2 presents a scatterplot of the relationship between Z and GDP per capita in 2014. Results showed that GDP per capita and Z were strongly related to each other (r = -.74, B = -0.00016, p = < .001). But the pattern in Figure 4.2 also shows that there is considerable variance especially at the wealthier end of the spectrum. Countries with very similar levels of GDP per capita have highly variant levels of collective discontent: Italy, France, Spain and Belgium have high discontent, while Japan, Finland, and Canada have low levels of discontent (see Figure 4.2). These results indicate that on the one hand, objective economic conditions and societal discontent are strongly related: Poorer countries such as Pakistan or India had high scores on Z and wealthier countries such as Switzerland or Denmark had lower scores on Z. On the other hand, economic conditions cannot account for the substantial variations in the levels of societal discontent across affluent countries.

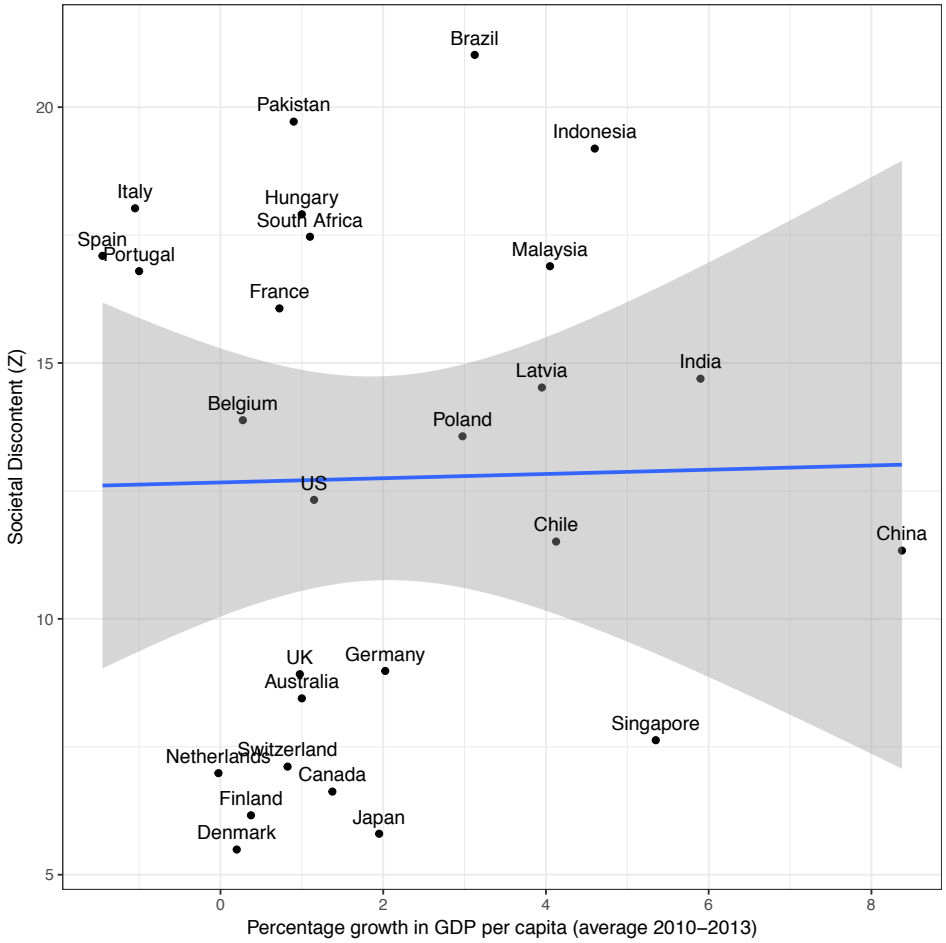

Figure 4.1 Relationship between percentage growth of GPD per capita (average 2010-2013) and Z (societal discontent); a linear regression line with a 95% confidence interval.

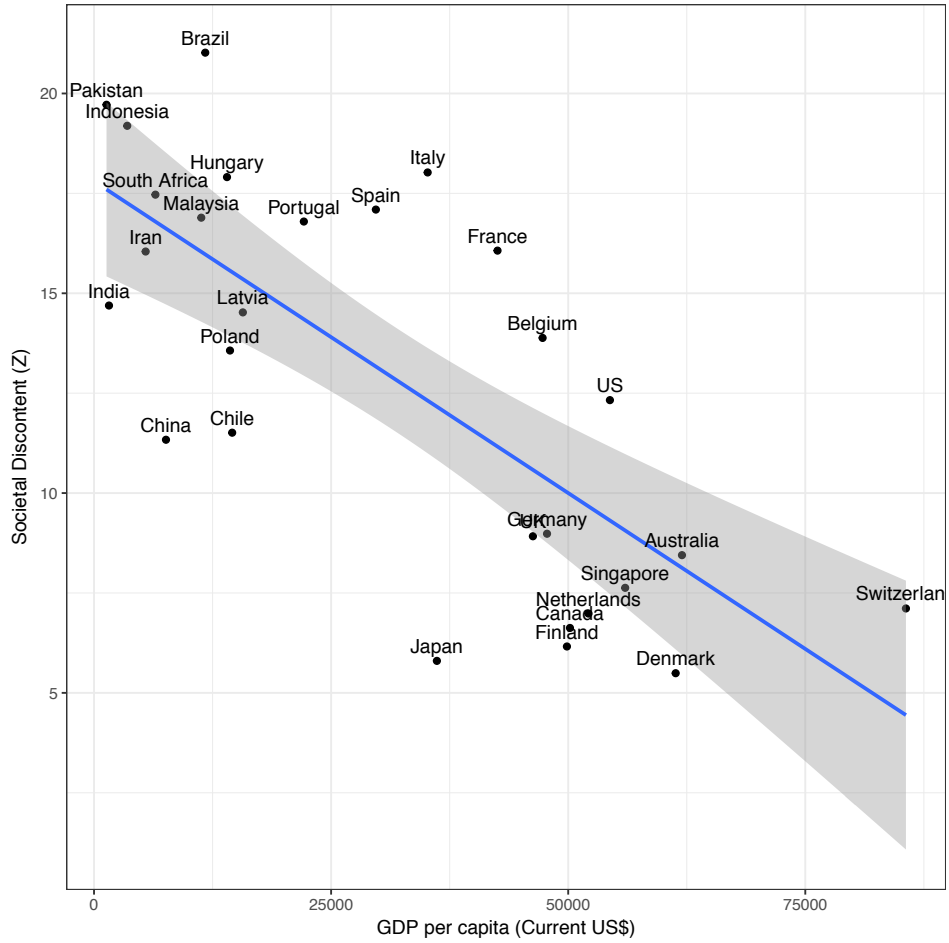

Figure 4.2 Relationship between GPD per capita (in current US$) and Z (societal discontent); linear regression line with a 95% confidence interval.

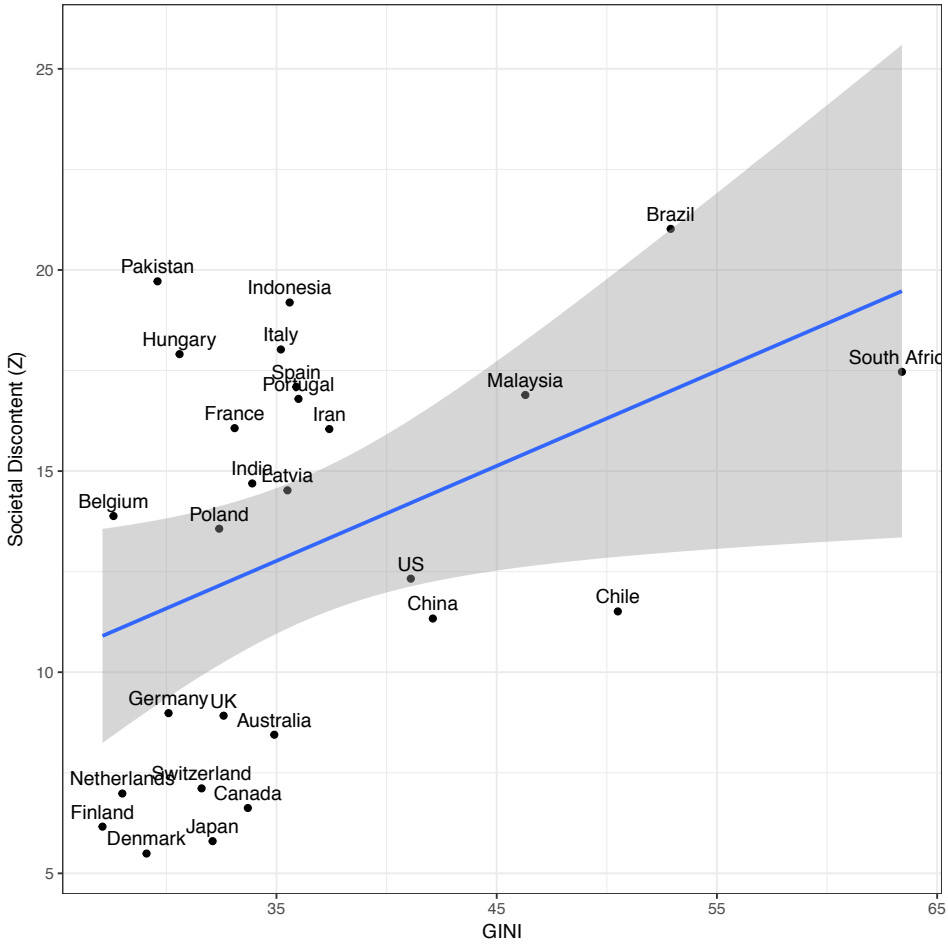

Figure 4.3 Relationship between the Gini Index and Z (societal discontent); linear regression line with a 95% confidence interval.

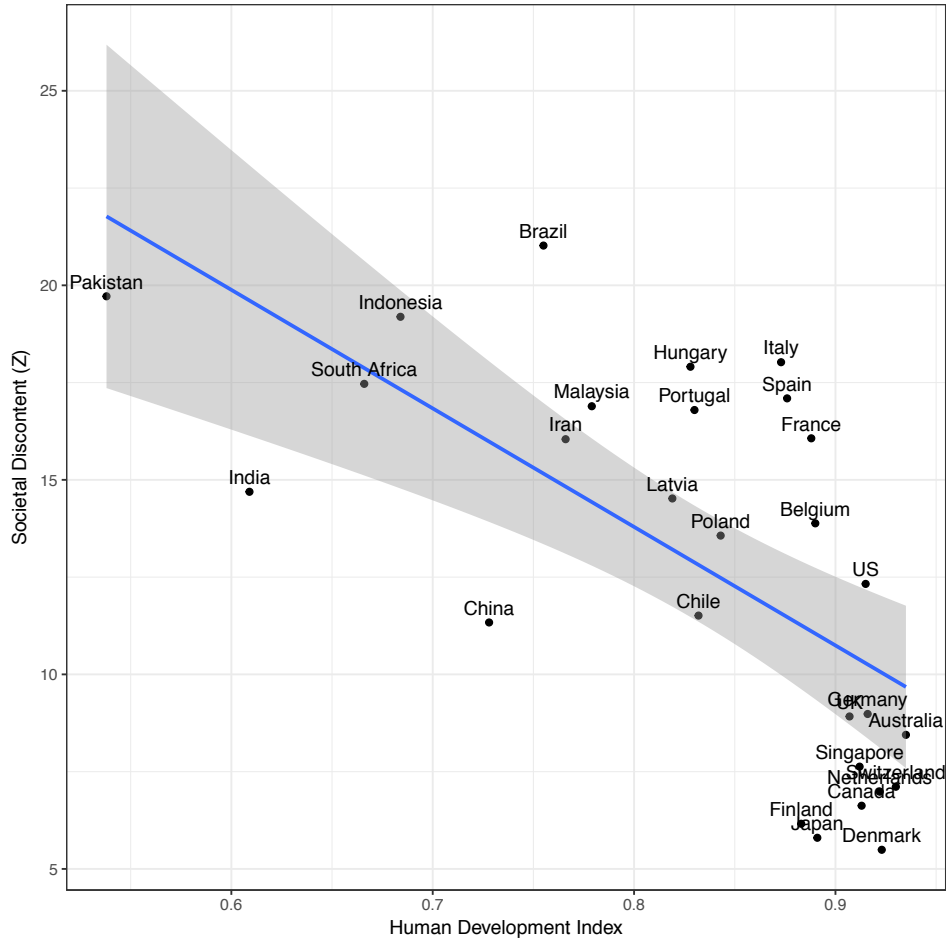

Figure 4.4 Relationship between HDI and Z (societal discontent); linear regression line with a 95% confidence interval.

Inequality: GINI. Next, we explored the relationship between income inequality and Z. Another (speculative) explanation of societal discontent is that it is related to widening divisions in society, for example between the "haves" and the "have-nots". The Gini index of income inequality is one way to quantify such societal divisions, and it is related to important social problems (R. D. Wilkinson & Pickett, 2009). Figure 4.3 presents a scatterplot of the relationship between Z and the Gini Index. The Pearson correlation between Z and Gini was significant: $r = .41$, $p = .033$. Although linear regression indicated Gini was a significant predictor of Zeitgeist ($B = 0.236$, $p = .033$), the pattern in Figure 4.3 suggests that for countries with relatively low levels of inequality, Gini was not a meaningful predictor of the level of a country's Zeitgeist of collective discontent. Countries with similar Gini-scores had very different scores on Z: Compare for example Italy (Gini = 35.2, Z = 18.02) and Australia (Gini = 34.9, Z = 8.45).

HDI. Lastly, we explored the relationship between Z and a more global indicator of country-level welfare: the Human Development Index (HDI). We were interested in the HDI as an index of social and economic conditions in a country, that is, an objective indicator of (the average) living conditions of people in a country. Figure 4.4 shows the relationship between Z and the HDI for all 28 countries. The Pearson correlation showed that HDI was strongly related to a country's Zeitgeist of collective discontent: $r(26) = -.65$, $p < .001$. The scatter plot in Figure 4.4 qualifies this relationship: linear regression indicated that HDI was a significant predictor of Z ($B = -30.46$, $p < .001$). On the one hand, a Zeitgeist of collective discontent was related to the objective living conditions of a country: Countries with high levels of social and economic development, such as Denmark or Canada, have a relatively low Z score, while countries with lower levels of social and economic development, such as Pakistan or South Africa, have high Z scores. However on the other hand, Figure 4.4 shows that some countries were outside the 95% confidence interval of the regression line, for example the U.S., Belgium, France, Spain, Italy, and Hungary. They had high levels of social and economic development, but also a high Z. This suggests that even though objective living conditions in a country might be good, it is nevertheless possible for a country to have relatively high collective discontent with the state of society.

Discussion

The present research aimed to develop an international Z-scale, which could be used to study and compare societal discontent across countries. When we first tested the Z-scale in each country separately, results showed that the best fitting scale for each country only dif-

fered slightly. In countries such as the U.S., Germany, the Netherlands, and Spain, the best fitting scales consisted largely of items that were the same in each country, but also contained items that were specific to each country. The item "crime" for instance was retained in the U.S. scale but not in the other countries, while items such as "unemployment" or "discrimination" were part of the best fitting scales in all four countries. This suggests that across countries, the same themes were recurring: In all countries, issues that are related to the economy, to politics and governance, and to social relations between people or groups in society were important. We propose that the differences in items from country to country reflect differences in issues that were regionally and temporally central to the Zeitgeist of societal discontent. In some countries these were economic issues, in others corruption, or immigration. These differences can be explained by differences in the current material and political realities between countries. For example, in the U.S. crime was much more important than in many European countries. This may be related to the fact that the rate of deaths by assault is below 1 per 100,000 people in Germany, the Netherlands, and Spain, while it is 5.2 in the U.S. (OECD, 2017). It may also be related to the fact that murder rates are a current political issue in the U.S. (e.g., in cities such as Chicago in which this problem is perceived to be out of hand). This could explain why Z is more strongly related to the issue of crime in the U.S. than elsewhere. On the basis of the small differences between countries, the great similarity in the underlying themes, and the fact that in each of these countries one general factor Z explained a large proportion of the variance in people's scores on these issues, we concluded that we could continue to develop an international Z-scale.

It proved to be possible to develop a six-item international Z-scale by selecting and testing the items that were equally important for the general factor Z across countries. The six items were: unemployment, corruption or fraud, discrimination, income inequality, injustice, and lack of respect. We tested this scale for measurement invariance in order to establish its suitability for cross-national research. Results showed that our scale met the criteria for configural invariance and metric invariance. With regard to scalar invariance, the Z-scale did not meet the criteria when the model was specified according to the most stringent criteria for full scalar invariance. However, when we applied less stringent (and we would argue more realistic) criteria for partial scalar invariance that are more commonly used in cross-cultural research, the Z-scale did meet the criteria. Although it is always important to proceed cautiously in making such international comparisons, our first results showed that Z can be compared across countries.

When we subsequently examined correlations between Z and other relevant psychological constructs across countries, we found further evidence for the convergent and divergent

validity of Z. Between countries, Z was correlated with other relevant psychological constructs that are connected to ideas about society or people in society, such as general social trust, political trust, or anomie. At country-level, there was evidence of convergent validity of Z. At the individual level of analysis, results showed evidence of divergent validity: Z was only moderately related to these same relevant psychological constructs. It was weakly related to national identification or life satisfaction, indicating that societal discontent it is not just expressed by people who feel distanced from society or unhappy with their own lives. We conclude that these results indicate that Z (as indicator of a Zeitgeist of societal discontent) is a valuable psychological construct, which is distinct from other relevant psychological constructs that reflect perceptions of (life in) society.

Recommendations for Measuring Societal Discontent as a Form of Zeitgeist

We conclude that these first results suggest that the six-item international Z-scale can be used to measure societal discontent as a form of Zeitgeist in future research across countries. Future research may apply this scale in different samples and in different countries to further assess its generalizability and validity. The Z-scale represents, as far as we know, the only purposefully developed scale available to measure societal discontent across countries. This Z scale may be a good alternative to scales that used only used one or two items, which are incorporated in large international surveys such as the European Social Survey or the Eurobarometer: "At the present time, would you say that, in general, things are going in the right or in the wrong direction, in [your country]?", or the summary score of "For most people in [country], life is getting worse" and "Hard to be hopeful about the future of the world". Although such items may be well suited to tap into global perceptions that things are going up or down, it is also clear that these items do not capture the sense that the country, at the present time, in a good or a bad shape. These single items are more about optimism/pessimism than about discontent. One additional disadvantage of these items is that it is unclear what "things" people are thinking of when they answer it. We believe that our operationalization of societal discontent as a latent factor Z is more suitable to capture such a diffuse and elusive concept as societal discontent, and better grounded in a theoretical and empirical rationale regarding the operationalization of it. One additional advantage of our approach is that one can gain additional insight into the relation between global societal discontents and personal levels of discontent with societal issues. Furthermore, the scale provides insight into the relation between the global sense of discontent and the specific issues that people worry about (e.g., the immigration or the economy). In sum, we recommend to use our international Z-scale in future research that aims to investigate and compare societal discontent across multiple

countries.

If one aims to measure societal discontent as a form of Zeitgeist within one country, one may use the theory and methodology discussed in this paper to construct a version of the Z-scale that is most suited to that country at that time. The international Z-scale may function as a good basis for a national Z-scale, supplemented with items that reflect specific societal issues that are currently important in this national context. For example, in some countries immigration is an important issue, so including this issue as an additional item might be important to verify if discontent about issues of immigration is informed strongly by the more global sense of discontent with society, or not. We recommend selecting up to ten or twelve items for a national Z-scale, six of which can be derived from the international Z-scale and the remainder of which is topical and relevant in the country in which the research is conducted.

Limitations and Future Research

Future research may elaborate our research with respect to the relationships between Z and several indicators of country-level welfare. In the present study, we were specifically interested in indicators of the objective social and economic welfare of a country. Our results of preliminary analyses showed that economic performance, income inequality, and objective social and economic living conditions did not provide definitive answers as antecedents of societal discontent. Recent economic growth was not related to Z across countries. While GDP per capita, income inequality, and HDI were moderately related to Z, there was still a lot of interesting unexplained variance. These results suggest that while objective economic and social living conditions are in general related to a Zeitgeist of societal discontent, they do not help much in trying to explain societal discontent in countries in which people are on average very well off. Future research may focus on the complex relationship between objective conditions and subjective perceptions in a country in order to gain a better understanding of societal discontent, especially in countries in which living conditions are objectively good.

In the present research, our participants were university students. The advantage of this choice was that all participants had a comparable position within society and were comparable on important demographic characteristics, such as age and education level. However, a drawback was the generalization of the results to a broader population. Our previous research on within-country variation suggests that these students might provide a relatively positive estimation of societal discontent in their country – in the Netherlands, people with lower education levels were more negative about society than people with higher education levels (Van der Bles et al., 2017). Yet in other countries, generalization remains a topic for future research.

In sum, we believe the international Z-scale has many advantages. The Z-scale is a precise way to operationalize a vague and elusive concept: the collective discontent with the state of society. It will help to gain insight in the discontents that characterize our era, and how these discontents are connected to each other. The Z-scale can be used to measure collective societal discontent within as well as between countries, which offers opportunities for exploring antecedents of societal discontent. It can also shed light on the discrepancies and similarities between people's experiences in their personal lives and their impressions of collective life, which is important if one wants to provide solutions for societal problems. For all these reasons, we recommend using the Z-scale if one aims to study the complex but important phenomenon of societal discontent.

4

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